

follow AT&T's price increases. HL ask the Court to engage in "industrial policy" by choosing those firms which should be permitted to compete in long distance markets. This action would go against the proper application of the antitrust laws in the U.S. The correct question is whether BOC entry would increase competition in long distance markets, not whether the Court could choose another set of potential competitors who might be able to increase competition.

42. HL argue that many other firms might enter the long distance market. For instance they mention GM, American Express, and Sears. The economic fact is that none of these firms have entered in spite of at least a 10 year opportunity to do so. The BOCs can overcome the barriers to entry because of their existing networks which decrease greatly the required sunk cost investments that create the barriers to entry.⁶⁵ GM, American Express, and Sears lack these existing networks.

43. HL claim that "it is difficult to imagine the source of the RBOCs' allegedly unique ability to compete in the long-distance market if it does not stem from their position as essentially monopoly providers of local-exchange services." (p. 44) It is easy to cure HL's "imagination deficit" problem. The economic concept is called economies of scope. Returning to my California example, Pacific Telesis already provides intraLATA long distance in California. The largest LATA in California, Los Angeles, has about 14.5 million people, more than 60% of all U.S. states. Pacific Telesis could link its network in Los Angeles to its network in the San Francisco area and serve over 20 million people. The networks are already in place so that only a single high capacity fiber pathway from Los Angeles to San Francisco would be required. This reduced cost of entry arises from economies of scope which means that Pacific Telesis can provide interLATA long distance service at less cost than a new entrant. HL totally miss this significant and elementary fact

⁶⁵ HL make the odd assertion (p. 44, fn. 64) that the BOCs could simply set up separate corporations to provide long distance service. However, these new corporations would face the same barriers to entry which have stopped entry from other firms. Of course, it is the economies of scope from their existing networks which allow the BOCs to overcome the barriers to entry.

of telecommunications networks.⁶⁶

44. HL then go on to claim that BOCs would have an "unfair competitive advantage" (p. 45), a distinctly strange claim from economists who should recognize that all firms have unique advantages. Does AT&T have an "unfair competitive advantage" in cellular because of its well known brand name which arises from 100 years of previous telephone service provision? The essential factor of competition is that all firms exploit their competitive advantages. It has long been recognized that the MFJ is stopping 7 of the most sophisticated telecommunications firms from competing in key U.S. telecommunications markets. Thus, the result is "unfair" to consumers who would have lower long distance prices if BOC entry were allowed.

45. BOCs are allowed to compete in intraLATA long distance markets. Using the same source of data referred to by Prof. Hubbard and Lehr, I find that long distance prices have decreased faster in intrastate markets where BOCs are permitted to compete with AT&T, MCI, and Sprint for intraLATA long distance traffic.⁶⁷ Within these intrastate jurisdictions, intraLATA calls for which the BOCs compete comprise 61% of all long distance calls.⁶⁸ In Figure 4a I graph intrastate long distance prices and compare them with interLATA long distance prices using exactly the same procedure used by HL.⁶⁹ Figure 4a demonstrates that deflated intrastate prices have declined considerably faster than interLATA prices over the period 1990-1994. The 15%

⁶⁶ I pointed out in my first affidavit that no other country has followed the U.S. example of not allowing the local provider to provide long distance in spite of numerous other countries allowing long distance competition, e.g. the U.K., Japan, Canada, and Australia. (Hausman aff. ¶ 4). Recognition of economies of scope has been a significant factor in these other countries' choices.

⁶⁷ Thus, Dr. Cornell's criticism of my claim that competition has worked well between the BOCs and the IXCs seems particularly odd. (Cornell aff., pp. 31-32) Dr. Cornell never examines the effect on intrastate prices for consumers. Instead, she argues that competitors to the BOCs must be protected without any analysis of the effects of the MFJ on consumers, for whom the antitrust laws exist.

⁶⁸ 1993 FCC Statistics of Communications Common Carriers, Table 2.6.

⁶⁹ Note that both series are collected in an equivalent manner by the Bureau of Labor Statistics.

greater decrease in prices over the period 1990-1994 benefitted consumers. Similarly, in Figure 4b the PPI index for intrastate long distance decreased by just under 15% more than the interstate long distance prices. In Figures 4c and 4d I repeat the analysis using the same deflation methodology used by HL in their Figure 1. As expected, the deflated intrastate prices demonstrate long distance prices decreased by 15% more than the deflated interstate long distance prices.⁷⁰ The usual litany of possible anti-competitive discrimination or cross-subsidy which is constantly brought up in these proceedings has not occurred. When BOCs are permitted to provide long distance, prices are lower and none of the IXC's have been forced from the market.⁷¹ Regulation has worked in these intrastate markets and consumers have benefitted from lower prices. This demonstration that BOC participation in long distance markets has led to a better price performance should provide an important indication of the lack of competition in interLATA long distance markets from which BOCs are excluded by the MFJ and the improvement in competition when BOCs are allowed to participate.

III. CONCLUSION ON INTERLATA LONG DISTANCE

46. Profs. Hubbard and Lehr, Bernheim and Willig, and MCI's Prof. Hall claim that the long distance market is competitive. However, they completely

⁷⁰ MCI's affiant, Prof. Hall, who demonstrates that inflation adjusted interstate long distance prices have been relatively constant over the period 1990-1993 (Fig. 3, p. 18) never discusses why intrastate long distance prices, where BOCs compete, have decreased by a significant amount over the same time period.

⁷¹ Thus, the affidavits for MCI of Prof. Hall and Prof. Cornell are especially interesting in that they claim that the "intraLATA toll market is a good example of the adverse effect of vertical integration on cooperation." (Hall aff., p. 37-38) Prof. Hall has apparently not looked at prices in these markets. If he had looked, he would have discovered that the price performance has been considerably better than in the interLATA markets. Perhaps he would then change his mind about the benefits of competition which he wants to replace by cooperation between the BOCs and the IXC's. Furthermore, he might retract his criticism of my claim that competition has led to significant improvements in these markets. (p. 38) If analyzed, actual market data can be a significant disciplining device on economists' claims.

ignore the effect of FCC regulation on AT&T's Basket 1 prices for residential and small business customers. AT&T's Basket 1 prices, including all discount plans, have been up against the FCC price cap ceiling each year, including 1994. AT&T has raised its prices when the price cap formula has permitted in response to non-economic changes in "exogenous costs" which arise from changes in accounting standards. When price changes are unrelated to changes in economics costs and when the two main competitors raise their prices in "lock-step" with each of AT&T's price increases, regulation rather than competition is determining prices for Basket 1 long distance services. These fundamental economic facts cannot be explained away. Indeed, Prof. Kwoka for Sprint recognizes these facts and states that the Basket 1 long distance market is not adequately competitive. But the result is more important: Consumers are paying higher long distance prices because the BOCs are not permitted to provide interLATA long distance. The antitrust laws exist to protect consumers, not AT&T, MCI and Sprint from competition. AT&T's and MCI's affiants appear to have forgotten this important economic point.

47. Prof. Hall contemplates whether competition or cooperation is better for the U.S. economy when vertical economic relationships exist (pp. 36ff). He decides that cooperation is better than competition. Here, he departs from the views of most economists who have long ago decided that competition leads to the greatest consumer benefits in the presence of vertical relationships. Firms which have significant expertise should not be barred from downstream markets to protect competitors. Consumers would benefit from increased competition in the long distance industry, which has been demonstrated to be non-competitive over the past 3-4 years.

48. Prof. Hall concludes that BOC entry into long distance markets will have no effect on prices or quantity. (p. 48) His belief stems from the incorrect assumption that all firms are the same with no special expertise. Thus based on Prof. Hall's reasoning, a BOC and any other company are interchangeable. This assumption is absurd. Using similar reasoning, it would not matter if Intel were barred from the microprocessor industry.

According to Prof. Hall's assumption, another company, equally efficient, would take Intel's place. He assumes away firm specific areas of expertise in his discussion. Alternatively, why do European and Latin American companies choose BOCs to operate cellular and landline telecommunications networks? The obvious answer is that the BOCs have significant expertise. In the U.S. the BOCs have both the expertise and the economies of scope to be low cost providers of long distance services. Prof. Hall merely assumes this outcome away.

IV. EQUIPMENT MANUFACTURING

49. Professor Perry, on behalf of AT&T, claims that BOCs might decide to purchase equipment from an affiliated manufacturer, and these actions could eliminate price and quality competition. (p. 3) However, he never gives a coherent reason why a BOC would have an economic incentive to do so given current regulation. AT&T and the BOCs were claimed to have escaped rate of return (ROR) service regulation by paying higher prices for purchases of equipment from Western Electric. However, note that this action could not occur now for at least two reasons: (1) ROR regulation is no longer used by the FCC and is used by less than 1/2 of the states. Under price cap regulation a BOC would have neither the economic incentive nor the ability to charge higher service prices if it paid more for its equipment. (2) Many benchmarks now exist for prices and quality. Whereas the Bell System bought almost all of its equipment from Western Electric which made very few sales to non-BOCs, now 7 BOCs would be buying equipment individually.⁷² This outcome provides regulators with multiple benchmarks for a BOC's purchasing decisions. Furthermore, GTE is larger than any single BOC and buys much of its equipment from AT&T providing yet another benchmark. Thus, previous alleged anti-

⁷² Under current merger policy and the current economic status of telecommunications, all 7 BOCs would not be allowed to merge their equipment manufacturing into a single company. However, a smaller group of BOCs might well be allowed to merge their equipment manufacturing operations.

competitive actions of a pre-divestiture AT&T would no longer be possible.

50. Prof. Perry claims that possible cross subsidy could create an economic problem. First, he fails to note that neither the FCC nor more than 1/2 of state regulators use ROR regulation any longer, so cross subsidy is not a significant problem.⁷³ He also fails to mention the clear statement by the DC Circuit Court of Appeals that cross subsidy is not a problem, apart from possible predation.⁷⁴ The idea that the BOCs could predate against companies such as AT&T is too farfetched for even Prof. Perry to claim. Absent predation, cross-subsidies cannot be said to be anticompetitive. Given that BOCs currently cross subsidize local service by charging below incremental cost prices as required by regulation, increased prices for local service would actually increase economic efficiency as I have already explained. (See supra, fn. 52)

51. Prof. Perry attempts to downplay price cap regulation because price cap review may bring costs back under consideration. (pp. 25ff.) He then claims that "price cap regulation begins to look very much like rate-of-return regulation." (p. 26) He is incorrect both in terms of economic theory and in terms of regulatory practice. First, suppose (as in California) that a price cap review takes place only once every 5 years. A \$1 increase in prices in 5 years is worth only \$0.56 today (using a 12% discount factor). However, a regulated company cannot be certain that it will even receive the money in 5 years. Suppose that the company believed that it had an 80% chance of receiving the money in five years time. Then the \$1 increase in prices in 5 years is worth even less today, about \$0.45 in expected value. Given discounting and significant uncertainty, a company will behave very

⁷³ Prof. Perry states incorrectly at numerous times in his affidavit that cost based regulation is used for the BOCs, e.g. p. 12, p. 13, etc. This claim is wrong as a matter of fact.

⁷⁴ U.S. v. Western Elec., 993 F.2d 1572, 1578-79 (D.C. Cir. 1993). Mr. Sullivan for AT&T makes the same omission in his discussion of possible problems with cross subsidy (pp. 51-52) if the BOCs were permitted to manufacture.

differently under price caps than under ROR regulation.⁷⁵ A price-cap regulated firm is assured of the benefits of any current cost cuts it makes today so it does its best to be efficient. However, the return to an "investment" in attempted cross-subsidy is uncertain at best and yields a low expected return. Unless the BOC believes it can have a very high success rate of fooling the regulator, it will not undertake a cross subsidy strategy because it does not make good business sense. No reason exists to believe that BOCs have been highly successful in fooling regulators with cross subsidy strategies.

52. In practice, for example, when California reviewed its price cap in 1994 (Decision 94-06-011, June 8, 1994) it did not even consider Pacific Bell's profits in setting the productivity factor. Thus, the cross-subsidy worry of Prof. Perry did not even enter the decision. Prof. Perry also brings up a possible profit sharing arrangement sometimes used in price cap formulae and quotes Prof. Farmer that a pure price cap plan would be better. (p. 27) In this daisy chain of reasoning, Prof. Perry never concludes that cross subsidy could actually occur. Nor does he explain how it could have actual adverse antitrust consequences. Whether a pure price cap system would be ideal is not the issue in this proceeding.

53. Prof. Perry also claims that the market for certain telecommunications equipment might be foreclosed. This possibility is extremely remote. Any telecommunications equipment manufacturer could provide its equipment to any BOC. Given the sunk costs of the manufacturer which is common in some telecommunications equipment, as I explained in my previous affidavit (§ 56), the manufacturer can produce at a lower cost than a BOC. Thus, it would not be in a BOC's economic self-interest to invest in new manufacturing capacity when it can buy the equipment more cheaply from an existing manufacturer. Prof. Perry also totally ignores the fact that telecommunications equipment markets have become international in scope since

⁷⁵ Since most of the investment in equipment would be sunk costs, an even larger discount factor would be appropriate which accounts for this factor.

the early 1980's.⁷⁶ Even AT&T is selling switching and other equipment abroad, while in the pre-divestiture era AT&T sold little or no equipment abroad.⁷⁷ Thus, foreclosure could not occur because equipment manufacturers sell both in the U.S. and abroad. Actions by BOCs could not force them to exit the market. But again, it would not be in a BOC's economic self-interest to cause exit. Given the significant sunk costs for most telecommunications equipment, a BOC would find it more economically beneficial to participate in joint ventures with manufacturers, rather than attempting to force the exit from the market of existing firms.⁷⁸

54. Prof. Perry claims that as much as 70% of the U.S. equipment market could be foreclosed from independent manufacturers. (p. 13) This number is wildly incorrect. Prof. Perry ignores the fact that IXCs including AT&T, MCI, and Sprint buy switches, fiber optic cable, and other telecommunications equipment. Non-BOC cellular companies and cable companies do likewise. Indeed, of these companies only AT&T buys almost solely its own equipment. In terms of revenues, the BOCs account for less than 50% of total purchases of landline central office and transmission equipment.⁷⁹ However, Prof. Perry makes an even more fundamental mistake when he assumes that a U.S. market

⁷⁶ Mr. Sullivan for AT&T makes a similar mistake in his assumption that equipment markets are national, not international. (pp. 45ff) For instance, he discusses fiber optic transmission systems for DS3 (p. 46), but he fails to note that DS3 systems are also used in Europe and Japan. Thus, his claim that "foreclosure by a BOC might be a viable strategy" (p. 46) totally ignores non-US demand for these same products.

⁷⁷ For instance, AT&T has joint ventures or other economic combinations in the Netherlands, Spain, and Italy for equipment sales. For a discussion see, J. Hausman, "The Bell Operating Companies and AT&T Venture Abroad While British Telecom and Others Come to the United States", in S. Bradley, J. Hausman, and R. Nolan, eds., Globalization, Technology and Competition, (Cambridge MA, 1993).

⁷⁸ Mr. Sullivan for AT&T attempts to do a foreclosure example in central office switches (p. 55), but he does his arithmetic wrong. He implicitly assumes that the BOC is not currently buying any switches from Northern Telecom while BOCs currently buy about 40% of their switches from Northern Telecom.

⁷⁹ Northern Business Information, US Transmission Equipment Market (1993) and U.S. Central Office Equipment Market (1993). In terms of overall equipment spending, the BOCs spend an even lower proportion.

exists for equipment. He does no economic nor antitrust analysis to justify his assumption of a U.S. market. Yet significant amounts of almost all telecommunications equipment is imported (and exported) to and from the U.S. The second largest central office switch manufacturer, the second largest cellular switch manufacturer, the second through tenth largest cellular handset manufacturers, and all fax equipment manufacturers are foreign firms which manufacturer and sell abroad as well as import into the U.S. Thus, applying DOJ and FTC Merger Guidelines Analysis (Apr. 2, 1992, ¶ 1.21) makes clear that world markets exist for many types of telecommunications equipment. Thus, Prof Perry's market definition is wrong and his foreclosure analysis disappears once a correct market is defined.

55. Prof. Perry claims that joint ventures with existing manufacturers of network switching equipment would not "deconcentrate that market, as claimed by the RHCs." (p. 17) He is wrong in this assertion. Two manufacturers--AT&T and Northern Telecom--sell nearly 90% of all central office switches in the U.S. This percentage has not changed significantly since divestiture. If BOCs were permitted to form joint ventures the market (as used by Prof. Perry) would certainly become less concentrated as other manufacturers were better able to sell their equipment. Prof. Perry claims that the District Court should protect AT&T from such competition because it may involve foreign firms. (pp. 17-18) He forgets that the antitrust laws are not designed to protect AT&T from foreign (or any other) competition. If the joint ventures produced better equipment than AT&T, consumers would benefit from better services. Furthermore, prices would decrease for telecommunications equipment in the U.S. with increased competition. Almost no economist, except for Prof. Perry, would claim that U.S. companies should not be permitted to form joint ventures with foreign companies because companies such as AT&T need to receive protection from competition.

56. Prof. Perry's discussion of possible discrimination (pp. 20 ff.) again misses the point that in the post MFJ world, equipment markets have become international. No BOC is nearly large enough to control any equipment

market by favoring its own manufacturing subsidiary. The BOC manufacturing unit must successfully sell its product throughout the world for it to succeed. Selling to less than 10% of the U.S. customer base alone would not be nearly enough for a manufacturer to succeed.

57. The extent to which Prof. Perry will go to support AT&T's position is evident in his claim that the market for customer premises equipment would be adversely affected by BOC entry. (pp. 30ff.) His discriminatory fantasies (see p. 31) could currently be carried out by a BOC that sells a particular type of CPE. BOCs have been selling CPE since divestiture. However, two market outcomes are quite evident. First, the BOCs have not engaged in this type of discrimination. Also, BOCs have not dominated the CPE markets in spite of their alleged ability to do so. Thus, Prof. Perry's suppositions are directly opposite to actual market outcomes. Given the wide divergence throughout his affidavit between his theorizing and actual market data, Prof. Perry has not linked up with the real world of telecommunications.

58. Finally, a significant omission exists in Prof. Perry's affidavit. Mobile telecommunications are growing extremely fast, about 45%-50% per year in the U.S. alone. Thus, AT&T's prediction of only a million cellular customers in 1999 at the time of divestiture is already wrong by approximately 24 million customers today. The BOCs have no "bottleneck" in cellular. Indeed, AT&T is the largest cellular company (via its purchase of McCaw) in the U.S. BOCs have significant expertise in mobile telecommunications both in the U.S. and abroad. Why should AT&T be protected against this competition from the BOCs? Yet the MFJ continues to forbid the BOCs from using their knowledge and experience in cellular to compete in mobile equipment.⁸⁰ No economic reason to fear anti-competitive harm exists, yet AT&T continues to

⁸⁰ Mr. Sullivan for AT&T claims that "new RBOC innovation incentives would be offset by a reduction in the incentives of all other manufacturers." (p. 62) This claim is based on no economic analysis, but it is a "zero-sum" misunderstanding often made by non-economists. Under this curious reasoning, vertical integration always leads to no change in innovation because of the counteracting effect on innovation incentives. Economic experience proves otherwise and most economists reject the claims similar to Mr. Sullivan's as economically vacuous.

use the MFJ to limit competition in the mobile telecommunications equipment. This anti-competitive action by AT&T demonstrates why the MFJ restrictions should be removed.

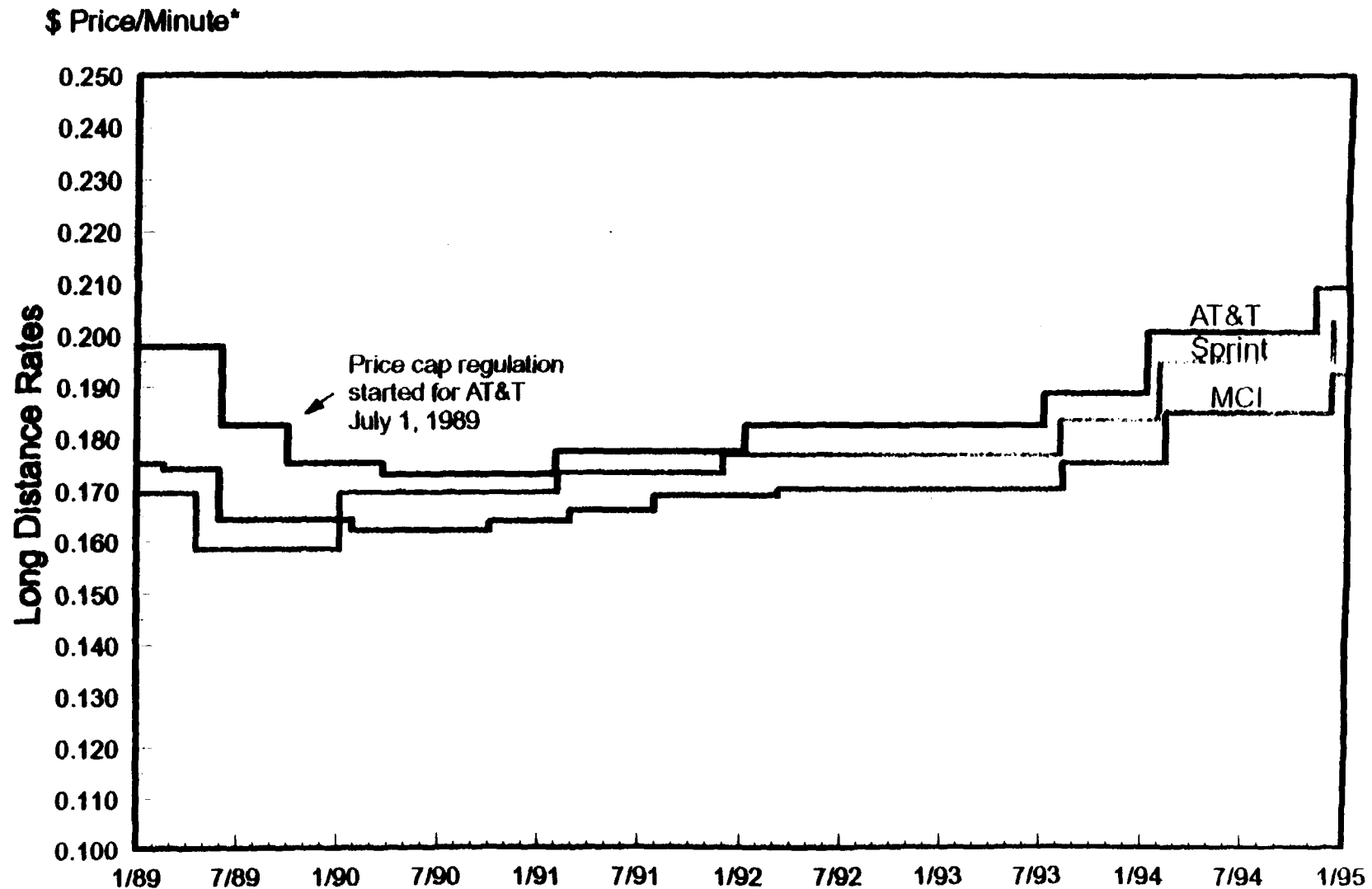
J. A. Hausman 30 May 1995
JERRY A. HAUSMAN

Subscribed and sworn to before me
this 30th day of May, 1995.

Diana Churley
Notary Public

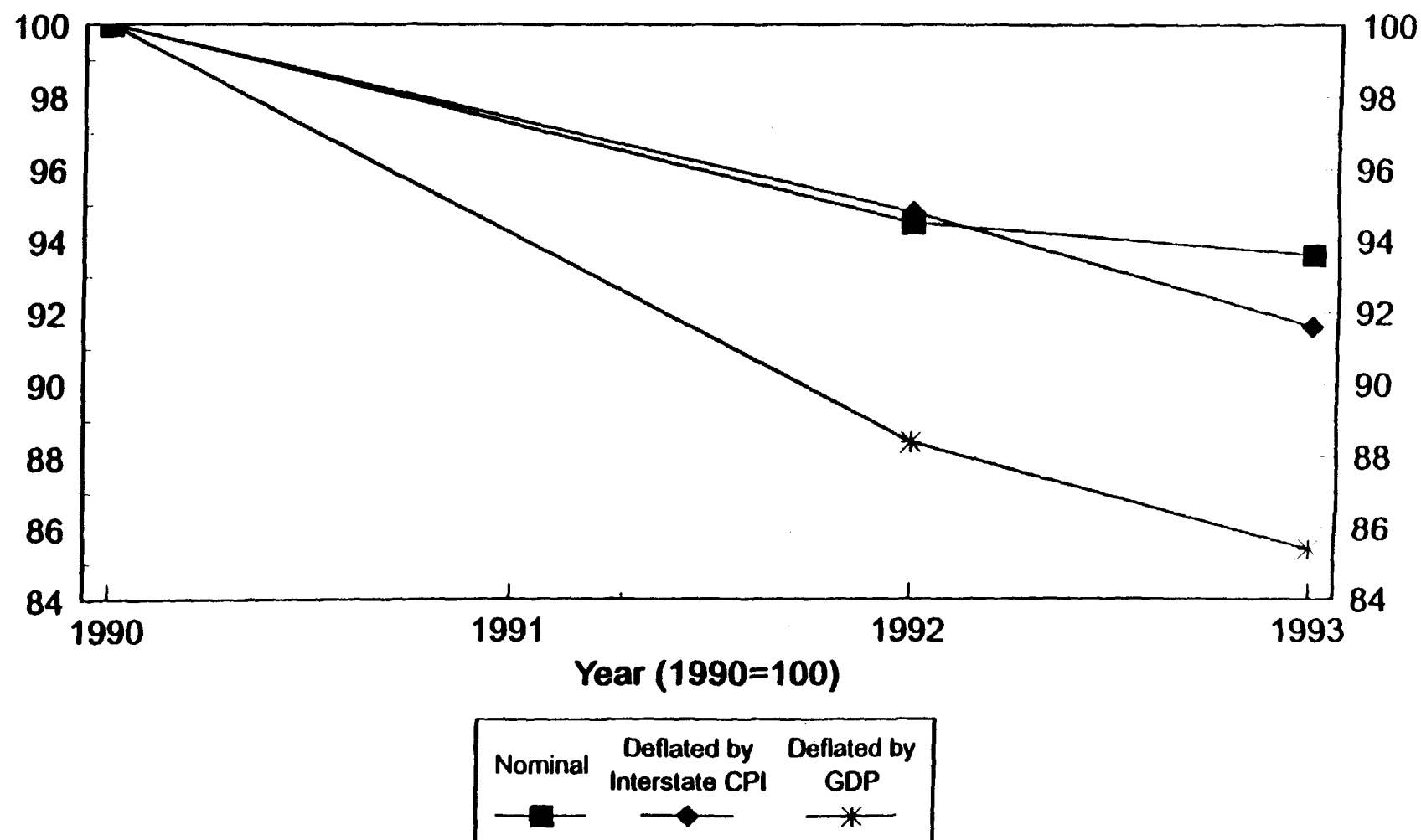
My Commission Expires 7/3/98

Figure 1: Trends in Long Distance Rates



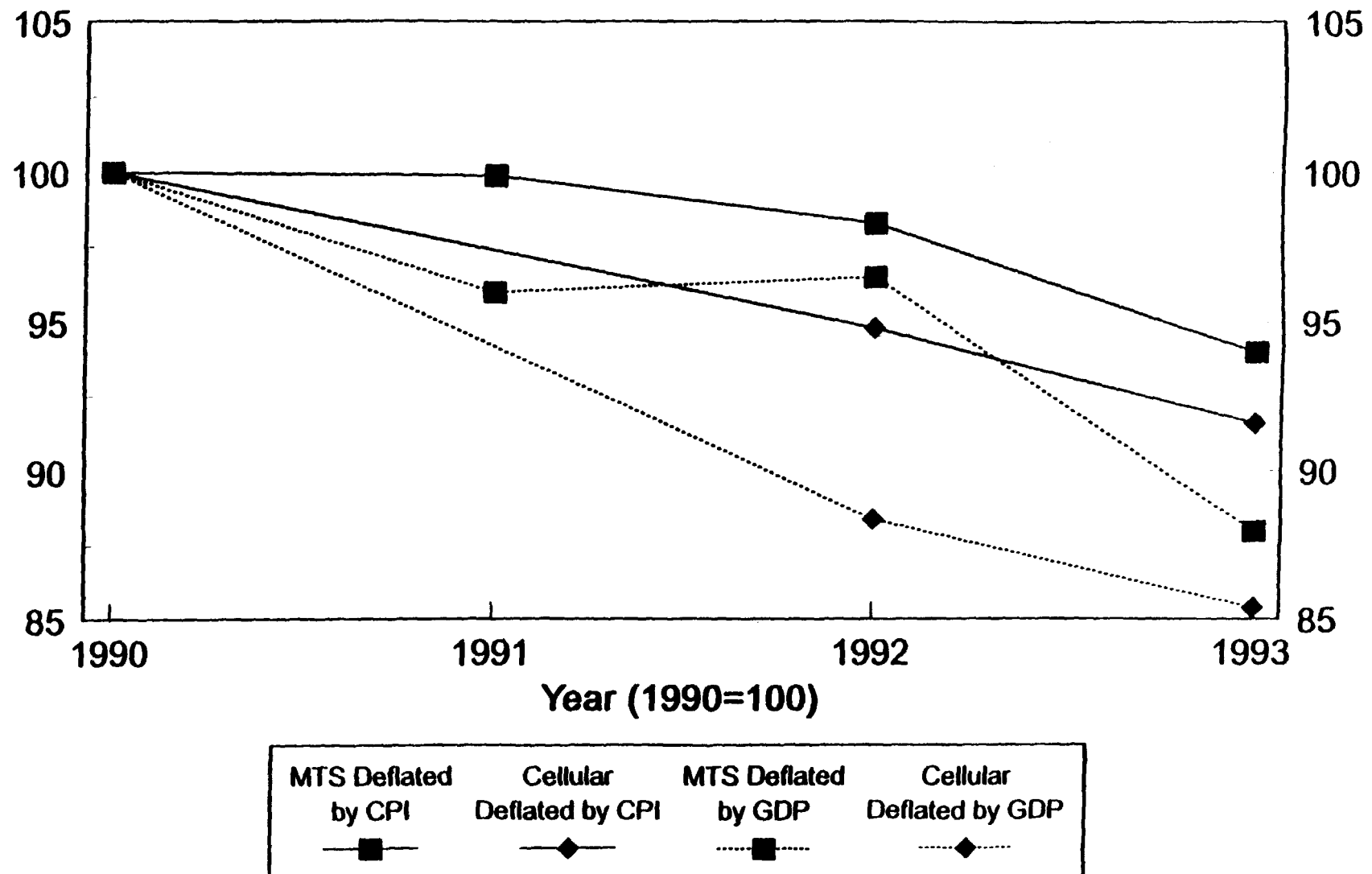
* Long distance rates based on the average price per minute for basic service.

Figure 2: Trends in Cellular Prices for Top 30 MSAs



Note: Data are year end prices. Data not collected in 1991.

Figure 3: AT&T ARPM v. Cellular Prices



Note: Cellular data are year-end prices. Cellular data not collected in 1991.

Figure 4a: Trends in Long-Distance Telephone Prices
Interstate v. Intrastate (BLS CPI Indices)

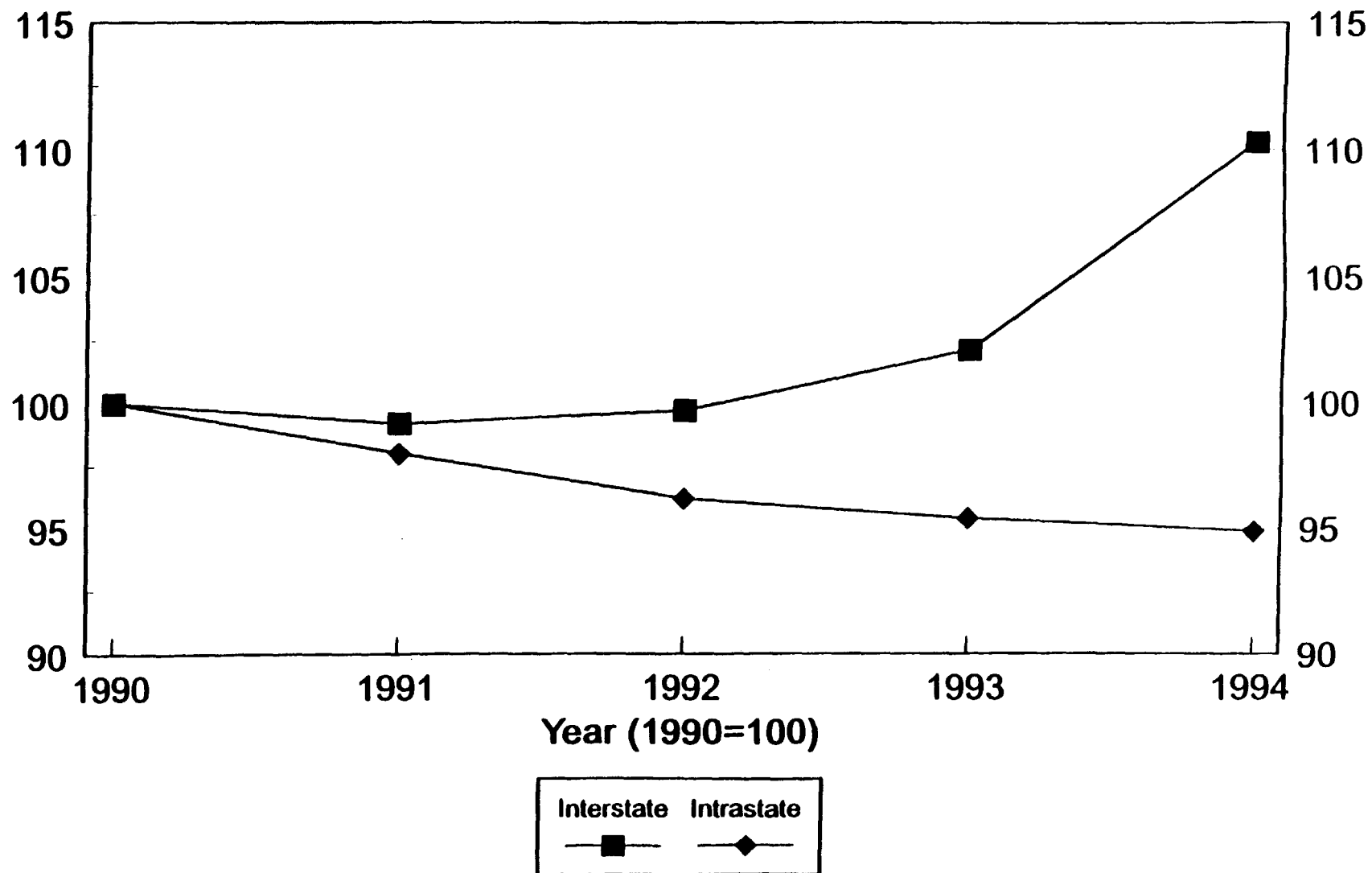


Figure 4b: Trends in Long-Distance Telephone Prices
Interstate v. Intrastate (BLS PPI Indices)

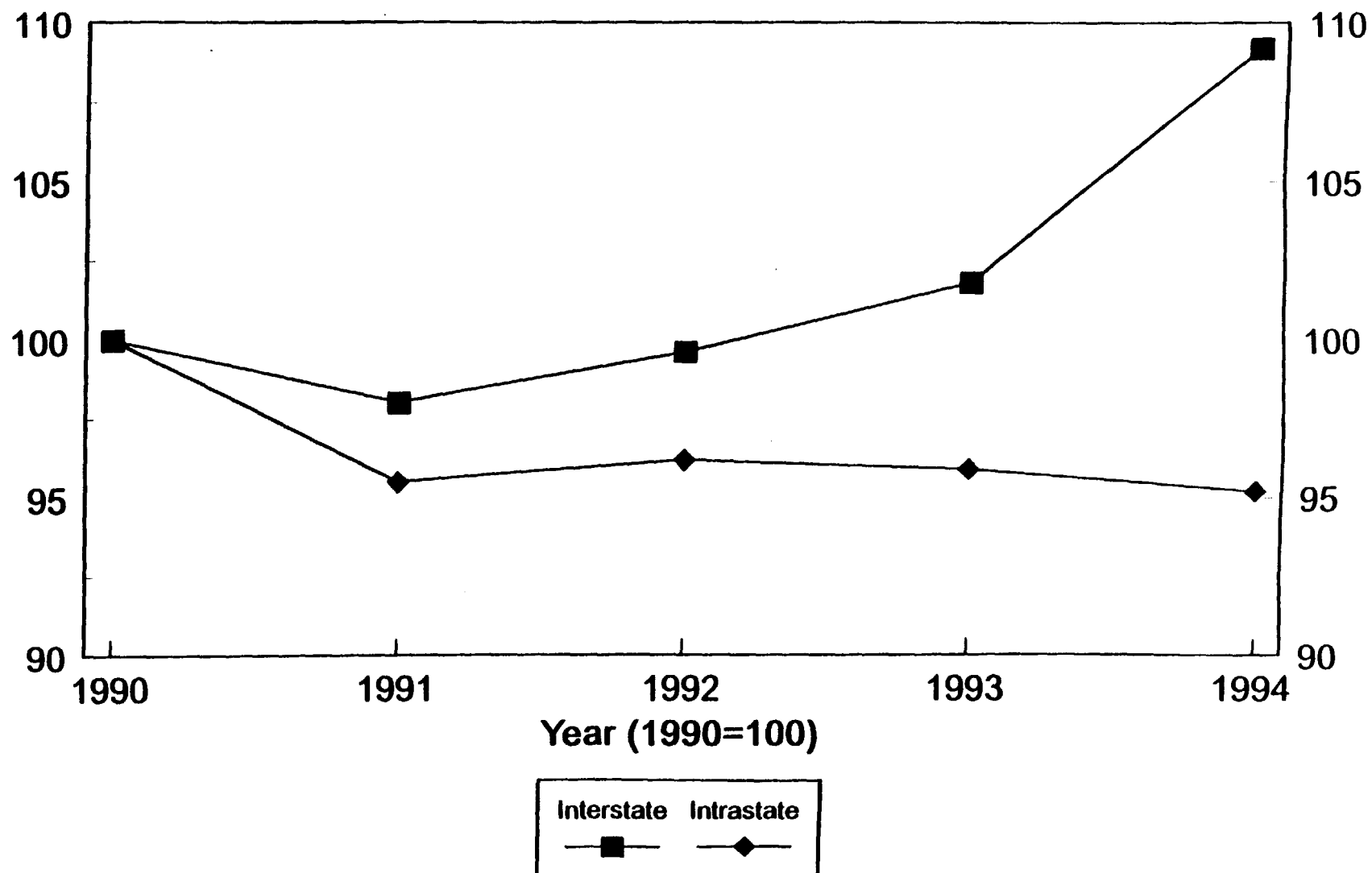


Figure 4c: Trends in Long-Distance Telephone Prices
Interstate v. Intrastate (BLS CPI Indices Deflated by GDP)

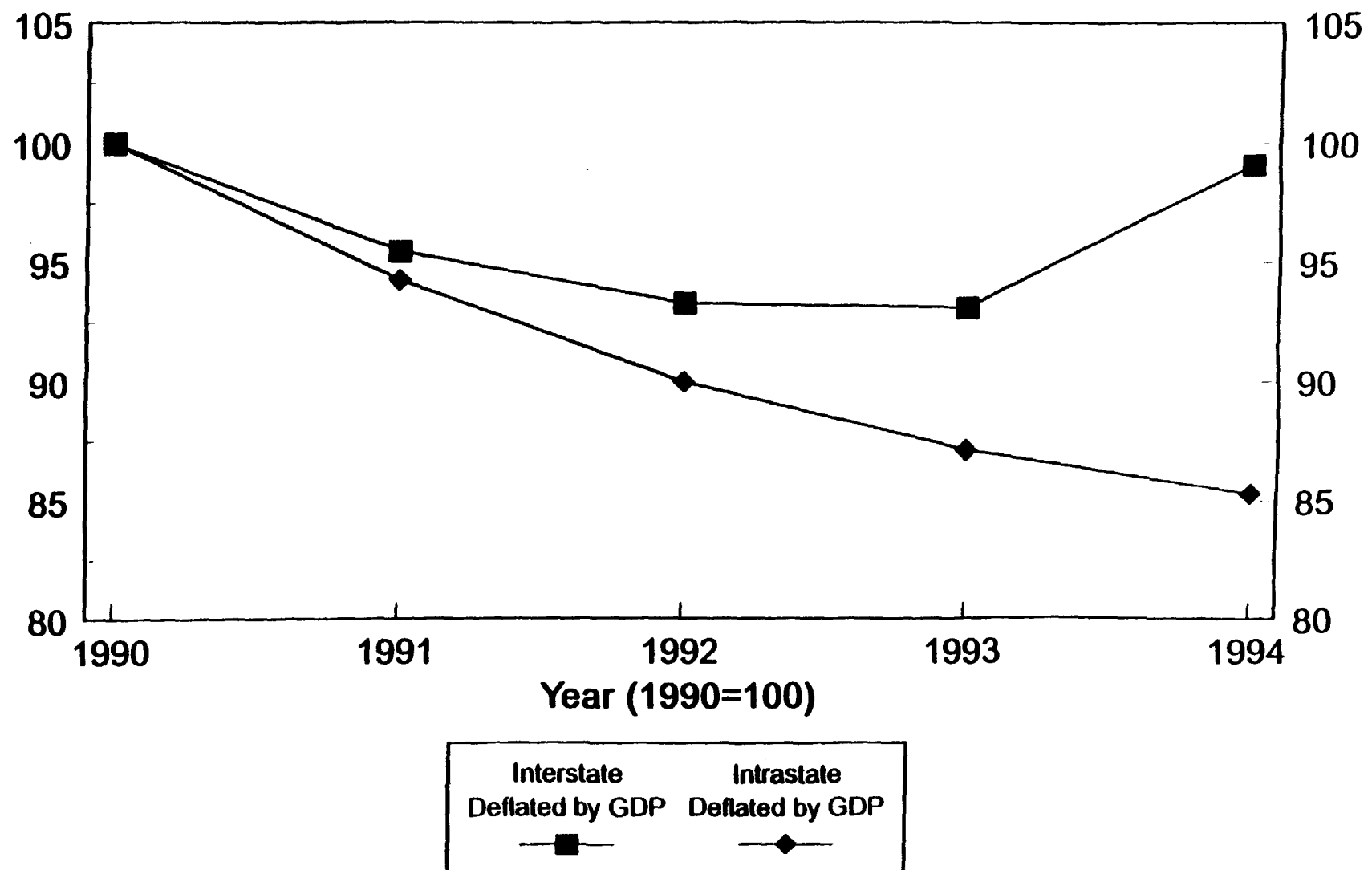
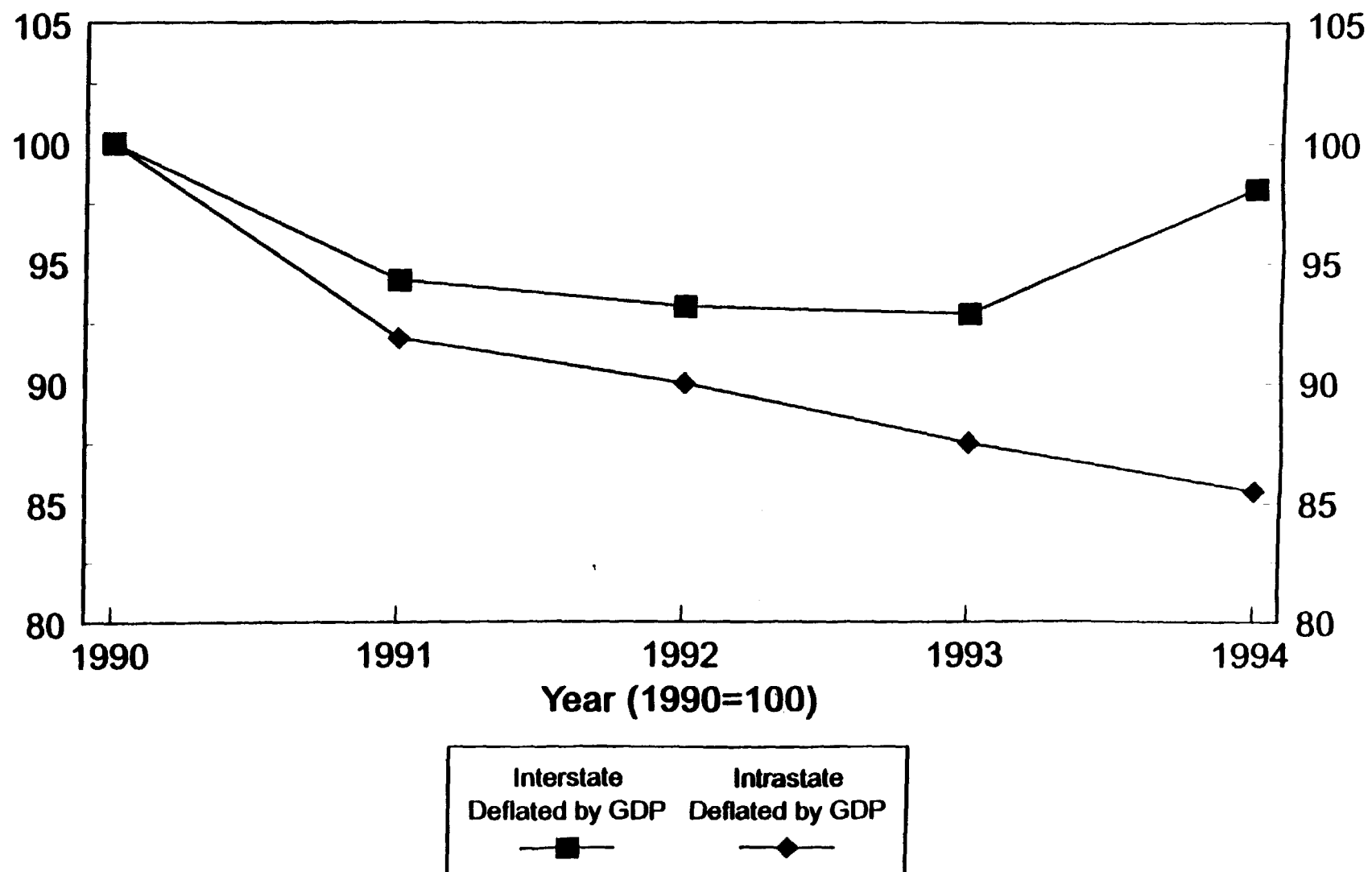


Figure 4d: Trends in Long-Distance Telephone Prices
Interstate v. Intrastate (BLS PPI Indices Deflated by GDP)



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PUBLICATIONS:

I. Econometrics

- "Minimum Mean Square Estimators and Robust Regression," Oxford Bulletin of Statistics, April 1974.
- "Minimum Distance and Maximum Likelihood Estimation of Structural Models in Econometrics," delivered at the European Econometric Congress, Grenoble: August 1974.
- "Full-Information Instrumental Variable Estimation of Simultaneous Equation Models," Annals of Economic and Social Measurement, October 1974.
- "Estimation and Inference in Nonlinear Structural Models," Annals of Economic and Social Measurement, with E. Berndt, R.E. Hall, and B.H. Hall, October 1974.
- "An Instrumental Variable Approach to Full-Information Estimators in Linear and Certain Nonlinear Econometric Models," Econometrica, May 1975.
- "Simultaneous Equations with Errors in Variables," delivered at Winter Econometric Meetings, San Francisco: December 1974; published in Journal of Econometrics 5, 1977, pp. 389-401.
- "Social Experimentation, Truncated Distributions, and Efficient Estimation," delivered at the World Econometric Congress, Toronto: August 1975; Econometrica, with D. Wise, June 1977.
- "A Conditional Probit Model for Qualitative Choice," delivered at World Econometric Congress, Toronto: August 1975; MIT Working Paper 173, April 1976; Econometrica, with D. Wise, March 1978.

PUBLICATIONS cont.:

- "Specification Tests in Econometrics," MIT Working Paper 185, June 1976; Econometrica, 1978.
- "Non-Random Missing Data," with A.M. Spence, MIT Working Paper 200, May 1977.
- "Attrition Bias in Experimental and Panel Data: The Gary Income Maintenance Experiment," with D. Wise, J.F. Kennedy School Working Paper, May 1977; Econometrica, January 1979.
- "Missing Data and Self Selection in Large Panels," with Z. Griliches and B.H. Hall, Harvard Economics Department Working Paper, August 1977; delivered at INSEE conference on Panel Data, Paris: August 1977; Annales de l'INSEE, April 1978.
- "Stratification on Endogenous Variables and Estimation," with D. Wise, J.F. Kennedy School Working Paper, January 1978; delivered at CME Conference, April 1978; in The Analysis of Discrete Economic Data, ed. C. Manski and D. McFadden, MIT Press, 1981.
- "Les models probit de choix qualitatifs," ("Alternative Conditional Probit Specifications for qualitative Choice.") (English Version), September 1977; EPRI report on discrete choice models, presented at INSEE Seminar, Paris: May 1978; Cahiers du Seminar d'Econometrie, 1980.
- "The Econometrics of Labor Supply on Convex Budget Sets," Economic Letters, 1979.
- "Panel Data and Unobservable Individual Effects," with W. Taylor, MIT Working Paper 225; Econometrica 49, November 1981.
- "Comparing Specification Tests and Classical Tests," with W. Taylor, August 1980, Economic Letters, 1981.
- "The Effect of Time on Economic Experiments," invited paper at Fifth World Econometrics Conference, August 1980; in Advances in Econometrics, ed. W. Hildebrand, Cambridge University Press, 1982.
- "Sample Design Considerations for the Vermont TOD Use Survey," with John Trimble, Journal of Public Use Data, 9, 1981.
- "Identification in Simultaneous Equations Systems with Covariance Restrictions: An Instrumental Variable Interpretation," with W. Taylor, December 1980; Econometrica, 1983.
- "Stochastic Problems in the Simulation of Labor Supply," presented at NBER conference, January 1981; in Tax Simulation Models, ed. M. Feldstein, University of Chicago Press, 1983.
- "The Design and Analysis of Social and Economic Experiments," invited paper for 43rd International Statistical Institute Meeting, 1981; Review of the ISI.
- "Specification and Estimation of Simultaneous Equation Models," in Handbook of Econometrics, ed. Z. Griliches and M. Intriligator, vol. 1, 1983.
- "Full-Information Estimators," in Kotz-Johnson, Encyclopedia of Statistical Science, vol. 3, 1983
- "Instrumental Variable Estimation," in Kotz-Johnson, Encyclopedia of Statistical Science, vol. 4, 1984

PUBLICATIONS cont.:

- "Specification Tests for the Multinomial Logit Model," with D. McFadden, October 1981; Econometrica, 1984.
- "Econometric Models for Count Data with an Application to the Patents R&D Relationship," with Z. Griliches and B. Hall, NBER Working Paper, August 1981; Econometrica, 1984.
- "The Econometrics of Nonlinear Budget Sets," Fisher-Shultz lecture for the Econometric Society, Dublin: 1982; Econometrica, 1985.
- "The J-Test as a Hausman Specification Test," with H. Pesaran, November 1982; Economic Letters, 1983.
- "Seasonal Adjustment with Measurement Error Present," with M. Watson, May 1983; Journal of the American Statistical Association, 1985.
- "Efficient Estimation and Identification of Simultaneous Equation Models with Covariance Restrictions," with W. Newey and W. Taylor, October 1983; Econometrica, 1987.
- "Technical Problems in Social Experimentation: Cost Versus Ease of Analysis," with D. Wise, in Social Experimentation, ed. J. Hausman and D. Wise, 1985.
- "Errors in Variables in Panel Data," with Z. Griliches, Journal of Econometrics, 1986.
- "Specifying and Testing Econometric Models for Rank-Ordered Data," with P. Ruud; Journal of Econometrics, 1987.
- "Semiparametric Identification and Estimation of Polynomial Errors in Variables Models," with W. Newey, J. Powell and H. Ichimura, 1986, Journal of Econometrics, 1991.
- "Flexible Parametric Estimation of Duration and Competing Risk Models," with A. Han, November 1986, revised January 1989, Journal of Applied Econometrics, 1990.
- "Consistent Estimation of Nonlinear Errors in Variables Models with Few Measurements," with W. Newey and J. Powell, 1987.
- "Optimal Revision and Seasonal Adjustment of Updated Data: Application to Housing Starts," with M. Watson, Journal of the American Statistical Association Proceedings, 1991.
- "Seasonal Adjustment of Trade Data," with R. Judson and M. Watson, ed. R. Baldwin, Behind the Numbers: U.S. Trade in the World Economy, 1992.
- "Nonparametric Estimation of Exact Consumers Surplus and Deadweight Loss," with W. Newey, 1990, revised 1992, revised 1995, forthcoming Econometrica.
- "Misclassification of a Dependent Variable in Qualitative Response Models," with F. Scott-Morton, mimeo December 1993.
- "Nonlinear Errors in Variables: Estimation of Some Engel Curves," Jacob Marschak Lecture of the Econometric Society, Canberra 1988, Journal of Econometrics, 65, 1995.

PUBLICATIONS cont.:

II. Public Finance

- "The Evaluation of Results from Truncated Samples," with D. Wise, Annals of Economic and Social Measurement, April 1976.
- "Discontinuous Budget Constraints and Estimation: The Demand for Housing," with D. Wise, J.F. Kennedy School Working Paper, July 1977; Review of Economic Studies, 1980.
- "The Effect of Taxation on Labor Supply: Evaluating the Gary Negative Income Tax Experiment," with G. Burtless, October 1977; Journal of Political Economy, December 1978.
- "AFDC Participation -- Permanent or Transitory?," delivered at NBER-NSF Conference, August 1978; in Papers from the European Econometrics Meetings, ed. E. Charatsis, North Holland: 1981.
- "The Effect of Wages, Taxes, and Fixed Costs on Women's Labor Force Participation," March 1979; presented at SSRC-NBER Conference on Taxation, Cambridge, England: June 1979; Journal of Public Economics, October 1980.
- "The Effect of Taxes on Labor Supply," presented at Brookings Conference, October 1979; published in How Taxes Affect Economic Behavior, ed. H. Aaron and J. Pechman, Brookings: 1981.
- "Income and Payroll Tax Policy and Labor Supply," presented at St. Louis Fed. conference, October 1980; in The Supply Side Effects of Economic Policy, ed. G. Burtless, St. Louis: 1981.
- "Individual Retirement Decisions Under an Employer-Provided Pension Plan and Social Security," with G. Burtless, Journal of Public Economics, 1982.
- "Individual Retirement and Savings Decisions," with P. Diamond, October 1981; presented at SSRC-NBER Conference on Public Economics, Oxford: June 1982; Journal of Public Economics, 1984.
- "Retirement and Unemployment Behavior of Older Men," with P. Diamond, presented at Brookings Conference on the Aged, November 1982; in H. Aaron and G. Burtless, Retirement and Economic Behavior, Brookings: 1984.
- "Tax Policy and Unemployment Insurance Effects on Labor Supply," May 1983; in Removing Obstacles to Economic Growth, ed. M. Wachter, 1984.
- "Family Labor Supply with Taxes," with P. Ruud, American Economic Review, 1984.
- "Social Security, Health Status and Retirement," with D. Wise, in Pensions, Labor, and Individual Choice, ed. D. Wise, 1985.
- "The Effect of Taxes on Labor Supply," January 1983; in Handbook on Public Economics, ed. A. Auerbach and M. Feldstein, 1985.
- "Choice Under Uncertainty: The Decision to Apply for Disability Insurance," with J. Halpern, Journal of Public Economics, 1986.

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HEADLINE: 'True Savings' Ends;
AT&T OFFERS NEW DISCOUNT PLAN, DROPS 'TRUE SAVINGS' AS COMPETITION EBBS

BODY:

AT&T unveiled new discount plan Mon. that expands offerings but cuts size of savings, joining MCI and Sprint plans that cover similar services. AT&T also said it would stop promoting 2-year program responsible for 22 million customers. Existing customers can remain in "True USA Savings," but new ones will be encouraged to sign up for new "True Reach Savings," which adds cellular long distance, operator-handled calls, directory assistance, conference calls and 800 numbers to basic long distance. AT&T said research showed customers wanted "simple, easy-to-understand programs" for long distance. Sprint and MCI said their existing plans offered similar discounts earlier this year.

In aggressive bidding war for long distance customers, AT&T 2 years ago introduced "True USA Savings" plan with 10% discounts for customers with \$10-\$25 in monthly calls. In Feb., company introduced "True Savings" that offered 25% price cut for \$10-\$50 in monthly calls, 30% for \$50 or more. Newest plan cuts discount to 10% for under \$25 and to 25% from 30% for calls over \$70 per month. Company said discounts are easier to understand.

AT&T plan was prompted by addition of several new services, including cellular long distance, which weren't available when first savings plans were introduced, official said. "Things are changing over time," said John Skalko, consumer service spokesman. However, rather than add those services to existing plans, it decided to create 3rd discount plan with new features and give existing customers option to switch. In N.Y. Stock Exchange trading Mon., AT&T gained \$1.37 to close at \$53.50 on turnover of 3.8 million shares.

Sprint, which introduced one-rate service in Jan., said AT&T was discovering customer demand for simplicity "a year late." It launched "Sprint Sense" flat-rate plan in Jan. with 22 cents-per-min. rates in peak hours, 10 cents off-peak and weekends. Similar flat-rate plan applies on international calls, although rates vary by destination. "AT&T is just perpetuating the confusion that's out there," said Robin Pence, dir., Sprint consumer affairs media. Sprint said neither AT&T savings plans nor MCI "Friends and Family" basic discount plans tell customers how much they pay for long distance, key message in Sprint marketing campaign. Like AT&T, it still will have customers on "The Most" discount plan, although "Sprint Sense" is company's chief long distance offering.

MCI "Friends & Family Connections" plan expanded discounts to cellular, paging, conference calls, 800 numbers and "follow-me" services earlier this year